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ABSTRACT

A study focused on teachers who have worked in computerized, networked writing classrooms at Purdue University (Indiana) for several year. Each of the subjects was a teaching assistant in the Purdue English Department, and the courses involved were upper division technical writing courses. Three theoretical approaches underpinned the study: feminist research methodologies, Foucauldian theory of the relationship between power and knowledge; and Louise Wetherbee Phelps' discussion of the various types of knowledge making in composition scholarship. The study was conducted in four phases. First, information was gathered about the history of the training program, the focus of the technical writing course, the sites in which the courses were taught, and the theoretical training of the research assistants. Second, the director of the program was interviewed to determine how the teaching assistants were being mentored. Third, a staff meeting was observed in which new on-line services were being presented by Purdue librarians. Fourth, interviews were conducted with the teaching assistants, using a common set of questions. Results showed that: (1) decentering was a goal for the teachers but they also worked to keep certain kinds of authority in place; (2) teachers were willing to learn technical knowledge from their students but they also considered themselves experts in communication and were confident about this; and (3) teachers recognized that the types of knowledge they use in the networked classroom is less static than knowledge in the traditional classroom. (TB)

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Reflections on teaching in a Computerized Classroom: Knowledge, Power, and Technology

Lynn Sykes and Nancy Uber

This study focuses on teachers who have worked in computerized, networked classrooms for several years. Each of our subjects was completing her or his teaching assistantship in Purdue's Department of English. As a result, the materials we gathered are reflections on an extended experience. We were interested in knowing how these teachers perceived the interrelationships between the technology, knowledge, and power in their classrooms. We also wanted to know how they would train teachers new to networked classrooms if they were given that task.

Our reasons for pursuing questions in these areas arose from a pilot study we participated in during the fall of 1993. The pilot study, part of a seminar in empirical research methods in composition, involved asking teaching assistants what issues were important to them about teaching in networked classrooms. Based on our findings in that study, we determined that issues of how the technology of the computerized classroom affects the distribution of power among students and teacher as well as a changing notion of what constitutes knowledge were worth pursuing further. Before discussing our findings, we would like to present some background information.

Background: Purdue University's Department of English offers upper division courses in technical writing to students from all departments of the university. Purdue has a strong emphasis on engineering and the sciences, and many students from these disciplines take the course as a supplement to their main area of study.

The technical writing courses are taught by graduate students in the English Department, most of whom are in the Rhetoric and Composition Program. When the graduate students begin teaching technical writing, they are mentored by the director of the technical writing program, Patricia Sullivan. In subsequent semesters teaching assistants meet with Dr. Sullivan as well as

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with the other instructors in weekly staff meetings in order to develop curriculum, learn about new software, and discuss teaching issues.

The courses are all taught in networked computer classrooms in a number of sites around campus. The technical and professional writing faculty in the English Department have regularly received grants for purchasing new software and networking access. As a result, the computer classrooms on campus provide teachers with a wide, and ever-changing range, of options for designing course projects.

One consequence of this continual upgrading is that the graduate teaching assistants have been faced with many circumstances that are new to all teachers working in these classrooms, not just to themselves. This situation places demands upon teaching assistants to be both self reliant and inventive in finding help with new technologies.

Another feature of the this particular situation that we would like to note is that all of these teachers share a background of a set of five core courses in rhetorical, composition, and empirical research theory. This training appears to inform the teachers' thinking about knowledge, power, and technology. While the course work addresses the entire range of theoretical positions, it centers primarily around social constructionist and other post modern approaches. Among these theoretical emphases is a Foucauldian examination of discursive formations and power/knowledge relationships. This course work perhaps heightens the teaching assistants' awareness of the impact of their choices for classroom management upon the students' ability to contribute to the class.

Theoretical framework: We trace the theoretical underpinnings to three main sources: feminist research methodologies; Foucauldian theory of the relationship between power and knowledge; and Louise Wetherbee Phelps' discussion of the various types of knowledge making in composition scholarship.

Feminist methodologies are based upon a goal of enfranchisement and empowerment for all people involved in the institution under study. As a result, the research methods promoted by

feminists recognize the researchers' inextricable involvement in the research, and require researchers to reflect upon their part in the work. Feminist research also emphasizes the importance of research designs that help all participants learn and make necessary changes to their institution. We used this approach in our work, and we also saw evidence that a feminist approach informed the teachers' work in similar ways.

Michel Foucault developed two methods for studying the dynamic relationship between power and knowledge, archaeology and genealogy. Archaeology examines systems of knowledge, tracing the construction of that knowledge. Genealogy involves the examination of systems of power and asks how systems of knowledge contribute to the operations of power along certain lines. Our questions were designed to elicit answers that reflected upon the systems of power and the systems of knowledge that reinforced the systems of power within the networked classroom.

Phelps develops a taxonomy of knowledge making and corresponding research methods, ranging from lore to theoretical knowledge. Her geography of knowledge helped us to locate our study within this larger schema. We identify our study as a local knowledge. This awareness of the type of work we were doing helped us to elicit local knowledge from the teachers.

Method: We conducted the study in four phases. First, we gathered information about the history of the training program, the focus of the technical writing course, the sites in which the courses were taught, and the theoretical training which the teaching assistants had. Second, we talked with the director of the program to learn how the teaching assistants were being mentored, and to hear from her what she thought their concerns were. Third, we observed a staff meeting in which new on-line services were presented by Purdue librarians. Fourth, we conducted what amounted to exit interviews with the teaching assistants, using a common set of interview questions. We will focus our presentation on the results of the interviews with the teaching assistants.

Our research questions were:

1. How do these experienced teachers use the technological aspects of the networked computer classroom for classroom management?
2. How do they use various software applications in the classroom?
3. How would they prepare teachers new to computer classroom teaching?

The resulting discussions touched upon theoretical and ethical questions as much as they did upon practical ones. We found that the teachers were very concerned with the effects of the computers on the distribution of power in the classroom. They were also interested in the ways that working in a computer classroom forces teachers and students alike to redefine knowledge.

One significant alteration of our beginning terms--power--needs to be discussed before we go further. The teaching assistants each focused on issues of authority rather than power. We understand authority to mean the locating of power--the ability to influence choices--in a person or technology. Authority for them was the blending of knowledge and power.

We found the teaching assistants with whom we spoke reflective and articulate. While we organized their comments and have highlighted those we thought most typical and salient, we have tried to let them speak for themselves in this part of the presentation. The first area we looked at was authority in the computer classroom. The teachers all noticed that the networked classroom tended to decentralize authority away from the teacher and toward the students. For example, one teacher commented,

> In the computer classroom, [authority] is more spread out. I'm not an expert on computers; I can get them started on projects, and they teach each other (Beth).

Even though they saw the classroom as decentered, all the respondents noted that the teacher had to work to make it that way. Here are some of their comments:

> If you have a more balanced contribution as a goal, the teacher still has to work to create it and can do all sorts of things to make it work. I've done it. . . . There's nothing essential in the computer lab that will make it decentered (Roger).

Another aspect of the decentering of authority involved the computer itself. As one teacher puts it:

> Authority happens with the computer too. It has more authority than you do (Kathy).

The same teacher points out that this same computer creates disparities in authority among the students, with some getting more than their share, and others losing.

> . . . some students have an attitude--they're in computer science and they know everything and they come in and lord it over other students. They tend to become leaders, but just because they know a lot about computers does not mean they should assume a leadership role, but often that's what happens. I spent a lot of time in tech writing studying it. I researched who took the leadership role in groups and usually it was the person with the most computer knowledge. You spend a lot of time trying to diffuse that (Kathy).

Students who don't know about computers may be disempowered:

> A lot of students have anxieties about [the decentered environment in the computer classroom]. It's kind of tied to writing anxiety. Some of it's tied to not getting access to knowledge about the computer technology (Kathy).

Other shifts in authority occur when the room is open to other users during class. Although the teachers we spoke to were concerned about sharing authority with their students, they all felt that the teacher needed to retain some authority.

> That's one thing I've learned. There's no such thing as a completely decentered classroom. The students are still going to appeal to you for one thing or another (Roger).

> One of the things that's problematic is you want the students to rely on each other but there are times when you want to say, "These projects are due at such and such a time, etc." To think you can give up authority is really not realistic (Kathy).

An issue closely tied to authority is that of knowledge. Who knows in the computer classroom? The teachers acknowledged and seemed to welcome learning as a reciprocal exchange between students and teacher.

> Don't be upset that you're learning from your students; that's cool for a writing class because it helps the collaboration in the class and the roles (Jean).
>
> You don't have to know everything. Even if you do know everything, they'll change the software in two years. Nobody knows everything (Beth).
>
> Don't get hung up on being an expert--it can work to your advantage not to be an expert. If you come across as an expert, you assert your authority in the classroom (Roger).

Despite the teachers' willingness to learn from their students, or perhaps because of it, we found there was a lot they did know. First of all, they all mentioned familiarity with software as important in teacher preparation. In addition, they saw themselves as experts in communication, and they saw the technology as an aspect of communication.

> Writing is a matter of access as well, not something restricted to the sentence or paragraph level. Different media access different people at different times and different ways (Greg).

In addition to knowledge about computers and writing, the teachers are in the process of constructing knowledge about methodology, approaches and theory related to teaching in a computer classroom.

On the day to day level, they discover what things work, and what things don't work in the networked classroom. Here is a sampling of ideas they have:

> . . . group discussions on a bulletin board, maybe outside of class time.
>
> Have students work on projects together in class, or individually.
>
> Confer with the teacher on e-mail (Beth).
>
> Group work--e-mail is not always the best way, because it takes too long to read e-mail; better to have a chalkboard, that is, a drawing document on the server.

> Sometimes it's better to have small groups work face to face, then share what they do electronically (Roger).

Moreover, teachers have looked at problems peculiar to the computer classroom.

> "Network" as a metaphor doesn't tell you where information will be; navigation is not clear. It needs to be reworked a lot, and I'm not sure how. It slows as more and more people use it (Roger).

They have come up with approaches that seem to work in their classrooms:

> The curriculum should be designed to use the computer as more than a smart typewriter. One person led a computer class just like a regular classroom, but it didn't work well. The lab wasn't set up for that (Beth).
>
> Meaningful interaction in any media is a real problem.
>
> 1) Try to present a genuine problem to students, and let them try to solve it, not you.
>
> 2) Don't be too task-oriented; a certain amount of play is important, even more important in a computer classroom (Roger).
>
> Learn how to analyze what things to take into consideration when you're analyzing, how well you're using the different communication means in a classroom If you're doing a particular activity, how many media are you having the student use for that activity. You won't see the patters; you have to be something of a researcher (Roger).
>
> The point is to look at problems as gaps; it might have an impact on what you're doing in class (Roger).

In addition to being concerned with technology in the classroom, teachers also considered the implications of what they were doing in the profession.

> We can't just be slaves to what we think tech people want us to do with our students. We have an ethical obligation to question some of that, to find some of the holes or some of the problems that are happening in tech communication and

to transform the field of tech communication as well as the teaching of it, when and where it needs to be transformed. We have to find ways to connect with industry (Jean).

Summary: We learned several things from the study.

1. Decentering is a goal for the teachers, but they need to keep certain kinds of authority and they need to learn how to decenter.
2. Teachers were willing to learn technical knowledge from their students, but they considered themselves experts in communication and they were very confident about teaching.
3. They recognized that the types of knowledge they use in a networked classroom is less static than knowledge in a traditional classroom.

Knowledge is still the key to authority.

Suggestions for future research: Several directions for future research suggest themselves and are affected by our commitment to situated practice of feminist methodologies that build towards theoretical knowledge. Certain features of the Purdue site seem to influence the results.

First, the director of the technical writing program, along with the other faculty of the rhetoric and composition program, are committed to decentering. There are many programs where such a commitment is not made. It's possible that other teachers in other settings have a different attitude toward decentering. Studies at other sites might elicit information about the differences, helping to make distinctions between intrinsic features of networked classrooms and ones that emerge from local programs.

Second, these teachers had successfully completed their careers in the program and seemed to share certain attitudes towards knowledge, authority, and technology. Namely, they were interested in decentering, in viewing knowledge as continually in flux and yet shareable and technology as changing and useful. It might be interesting to study a group of teachers who did not stay with technical writing because they didn't feel comfortable. Such a study could

contribute to our understanding of whether certain attitudes/personality features are more compatible with work in networked classrooms.

Finally, because of the highly technical orientation of Purdue and the upper division content of the courses, these courses presented students with greater exposure to technology and also more practice at learning new technologies. Other sites involve first year curricula with virtually no students who know more than the teacher. Conducting a similar study in another site might yield insight into how technology can impact teaching strategies.

Note: Teachers names were changed.

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